

IN THE CLAIMS

Claim 1(First time amended). A scintillator detector for high energy radiation [crystal] comprising : a monocrystalline structure of cerium doped lutetium yttrium orthosilicate.

CANCEL CLAIM 3.

Claim 5(First Time Amended). A scintillation detector assembly comprising:
a cerium doped lutetium yttrium orthosilicate mono crystal; and,
a photon detector coupled to said crystal said crystal when exposed to a high energy gamma ray.

CANCEL CLAIM 6.

Claim 7(First Time Amended). The detector assembly of Claim 5 wherein said mono crystal has the general composition of $Ce_{2x}(Lu_{1-y}Y_y)_{2(1-x)}SiO_5$ where $x =$ approximately 0.00001 to approximately 0.05 and $y =$ approximately 0.0001 to approximately 0.9999.

Claim 9(First Time Amended). The detector assembly of Claim 8 [5] wherein said coupled photon detector is selected from at least one of a photomultiplier tube, a PIN diode and an AP[F]D(avalanche photo detector) diode.

Please Add New Claims as follows:

- 10. A method of detecting energy with a scintillation detector, comprising the steps of:
receiving radiation by a crystal comprising cerium doped lutetium yttrium orthosilicate;
detecting energy from a detector coupled to the crystal.
11. The method of claim 10, wherein the step of receiving radiation includes the step of:
receiving gamma rays.
12. The method of claim 10, wherein the step of receiving radiation includes the step of:

receiving x-rays.

13. The method of claim 10, wherein the step of receiving radiation includes the step of receiving cosmic rays.
14. The method of claim 10, wherein the step of receiving radiation includes the step of receiving radiation by a monocrystalline.
15. The method of claim 10, wherein the step of detecting includes the step of: detecting light with a photo detector coupled to the crystal.
16. The method of claim 15, wherein the step of detecting includes the step of: detecting light with a photomultiplier tube coupled to the crystal.
17. The method of claim 15, wherein the step of detecting includes the step of: detecting light with a PIN diode coupled to the crystal.
18. The method of claim 15, wherein the step of detecting includes the step of: detecting light with an APD diode coupled to the crystal.
19. The method of claim 10, wherein the crystal includes a composition of $\text{Ce}_{2x}(\text{Lu}_{1-y}\text{Y}_y)_{2(1-x)}\text{SiO}_5$ where $x =$ approximately 0.00001 to approximately 0.05 and $y =$ approximately 0.0001 to approximately 0.9999.
20. The method of claim 13, wherein x ranges from approximately 0.0001 to approximately 0.001 and y ranges from approximately 0.3 to approximately 0.8. --.

Remarks

Favorable consideration of this application is respectfully requested. Applicant has amended claims 1, 5, 7, 9, canceled claims 3 and 6 and added new claims 10-20. Applicants gratefully appreciate the telephone conversation with the Examiner on January 15, 2001. As discussed, amended independent claims 1 and 5 are limited to a scintillation detector which is